

1 What is claimed is:

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3 1. In a storage system employed in a client-server network, an interface operating
4 between a first protocol and a second protocol comprising:

5 means for receiving first information in accordance with said first protocol from
6 said client;

7 means, operatively coupled to said receiving means, for determining that said first
8 protocol is acceptable to allow further processing of said first information in said system;

9 means, responsive to operation of said determining means, for translating said
10 first information into second information compatible with said second protocol;

11 object manager means operative in accordance with said second protocol;

12 means for forwarding said second information to said object manager means and,
13 responsive to said object manager means managing said second information, for
14 receiving a managed response thereto from said object manager means;

15 means for reverse-translating said managed response into an equivalent response
16 compatible with said first protocol; and,

17 means for forwarding said equivalent response to said client.

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19 2. The interface of claim 1 and wherein said first protocol is CIM/XML/HTTP.

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21 3. The interface of claim 2 and wherein said second protocol is WMI/DCOM.

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23 4. The interface of claim 1 and wherein said determining means further comprises:

1 means for establishing a plurality of acceptable protocols;

2 means for comparing said first protocol against said plurality of acceptable
3 protocols seriatim until said first protocol matches one of said plurality of protocols; and,

4 means, responsive to operation of said comparing means for allowing said
5 further processing.

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7 5. The interface of claim 4 and wherein the result of said operation of said
8 comparing means not obtaining a match is that said further processing is not allowed.

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10 6. The interface of claim 4 and wherein said plurality of protocols includes:
11 CIM/XML/HTTP and SOAP/HTTP/WBEM.

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13 7. The interface of claim 1 and wherein said translating means includes said reverse-
14 translating means.

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16 8. The interface of claim 6 and wherein said translating means includes said reverse-
17 translating means.

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19 9. The interface of claim 3 and wherein said determining means further comprises:

20 means for establishing a plurality of acceptable protocols;

21 means for comparing said first protocol against said plurality of acceptable
22 protocols seriatim until said first protocol matches one of said plurality of protocols; and,

1 means, responsive to operation of said comparing means for allowing said
2 further processing.

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5 10. In a storage system employed in a client-server network, a method for interfacing
6 between a first protocol and a second protocol comprising:

7 receiving first information in accordance with said first protocol from said client;
8 determining that said first protocol is acceptable to allow further processing of
9 said first information in said system;

10 translating said first information into second information compatible with said
11 second protocol;

12 establishing an object manager operative in accordance with said second protocol;
13 forwarding said second information to said object manager and, responsive to said
14 object manager managing said second information, receiving a managed response thereto
15 from said object manager;

16 reverse-translating said managed response into an equivalent response compatible
17 with said first protocol; and,

18 forwarding said equivalent response to said client.

19
20 11. The method of claim 10 and wherein said first protocol is CIM/XML/HTTP.

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22 12. The method of claim 11 and wherein said second protocol is WMI/DCOM.

1 13. The method of claim 1 and wherein said determining further comprises:
2 establishing a plurality of acceptable protocols;
3 comparing said first protocol against said plurality of acceptable protocols
4 seriatim until said first protocol matches one of said plurality of protocols; and,
5 allowing said further processing.

6
7 14. The method of claim 13 and wherein the result of said operation of said
8 comparing not obtaining a match is that said further processing is not allowed.

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10 15. The method of claim 13 and wherein said plurality of protocols includes:
11 CIM/XML/HTTP and SOAP/HTTP/WBEM.

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13 16. The method of claim 10 and wherein said translating includes said reverse-
14 translating.

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16 17. The method of claim 15 and wherein said translating includes said reverse-
17 translating.

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19 18. The method of claim 12 and wherein said determining further comprises:
20 establishing a plurality of acceptable protocols;
21 comparing said first protocol against said plurality of acceptable protocols
22 seriatim until said first protocol matches one of said plurality of protocols; and,
23 allowing said further processing.

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3 19. A computer program product for use on a computer to be operated within a client-
4 server network employing a storage area network including at least one storage system,
5 said computer program product functioning to interface between a first communication
6 protocol and a second communication protocol and comprising a computer usable
7 medium having computer readable program code thereon, said computer readable
8 program code comprising:

9 program code for receiving first information in accordance with said first protocol
10 from said client;

11 program code for determining that said first protocol is acceptable to allow further
12 processing of said first information in said system;

13 program code for translating said first information into second information
14 compatible with said second protocol;

15 program code for establishing an object manager operative in accordance with
16 said second protocol;

17 program code for forwarding said second information to said object manager and,
18 responsive to said object manager managing said second information, receiving a
19 managed response thereto from said object manager;

20 program code for reverse-translating said managed response into an equivalent
21 response compatible with said first protocol; and,

22 program code for forwarding said equivalent response to said client.
23

1 20. The computer program product of claim 19 and wherein said first protocol is
2 CIM/XML/HTTP.

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4 21. The computer program product of claim 20 and wherein said second protocol is
5 WMI/DCOM.

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7 22. The computer program product of claim 19 and wherein said program code for
8 determining further comprises:

9 program code for establishing a plurality of acceptable protocols;

10 program code for comparing said first protocol against said plurality of
11 acceptable protocols seriatim until said first protocol matches one of said plurality of
12 protocols; and,

13 program code for allowing said further processing.
14

15 23. The computer program product of claim 22 and wherein the result of operation of
16 said program code for comparing not obtaining a match is that said further processing is
17 not allowed.
18

19 24. The computer program product of claim 22 and wherein said plurality of
20 protocols includes: CIM/XML/HTTP and SOAP/HTTP/WBEM.
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22 25. The computer program product of claim 19 and wherein said program code for
23 translating includes said program code for reverse-translating.

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2 26. The computer program product of claim 24 and wherein said program code for
3 translating includes said program code for reverse-translating.

4
5 27. The computer program product of claim 21 and wherein said program code for
6 determining further comprises:

7 program code for establishing a plurality of acceptable protocols;

8 program code for comparing said first protocol against said plurality of
9 acceptable protocols seriatim until said first protocol matches one of said plurality of
10 protocols; and,

11 program code for allowing said further processing.
12
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14 28. Apparatus to be operated within a client-server network employing a storage area
15 network including at least one storage system, said apparatus functioning to interface
16 between a first communication protocol and a second communication protocol and
17 comprising:

18 first information receiver for receiving first information in accordance with said
19 first protocol from said client;

20 first protocol acceptor for determining that said first protocol is acceptable to
21 allow further processing of said first information in said system;

22 first information translator for translating said first information into second
23 information compatible with said second protocol;

1 an object manager operative in accordance with said second protocol;
2 forwarding and receiving apparatus for forwarding said second information to
3 said object manager and, responsive to said object manager managing said second
4 information, receiving a managed response thereto from said object manager;
5 reverse translator for reverse-translating said managed response into an equivalent
6 response compatible with said first protocol; and,
7 equivalent response forwarder for forwarding said equivalent response to said
8 client.

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10 29. The apparatus of claim 28 and wherein said first protocol is CIM/XML/HTTP.

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12 30. The apparatus of claim 29 and wherein said second protocol is WMI/DCOM.

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14 31. The apparatus of claim 28 and wherein said first protocol acceptor for
15 determining further comprises:

16 plurality of protocols acceptor for establishing a plurality of acceptable
17 protocols;

18 a comparator for comparing said first protocol against said plurality of
19 acceptable protocols seriatim until said first protocol matches one of said plurality of
20 protocols; and,

21 further processing apparatus for allowing said further processing.
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1 32. The apparatus of claim 31 and wherein the result of operation of said comparator
2 not obtaining a match is that said further processing is not allowed.

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4 33. The apparatus of claim 31 and wherein said plurality of protocols includes:
5 CIM/XML/HTTP and SOAP/HTTP/WBEM.

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7 34. The apparatus of claim 28 and wherein said first information translator for
8 translating includes said reverse translator for reverse-translating.

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10 35. The apparatus of claim 26 and wherein said first information translator for
11 translating includes said reverse translator for reverse-translating.

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13 36. The apparatus of claim 30 and wherein said first protocol acceptor for
14 determining further comprises:

15 plurality of protocols acceptor for establishing a plurality of acceptable
16 protocols;

17 a comparator for comparing said first protocol against said plurality of
18 acceptable protocols seriatim until said first protocol matches one of said plurality of
19 protocols; and,

20 further processing apparatus for allowing said further processing.
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